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EXAMINER

FEELY, MICHAEL J

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/049,233

Applicant(s)

QIAO ET AL.

Examiner

Michael J. Feely

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-22 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-16 and 18-22 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 25 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1104.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Pending Claims

Claims 1-16 and 18-22 are pending.

Previous Claim Rejections - 35 USC § 112

1. The rejection of claims 1-8 and 18 under 35 U.S.C. 112, second paragraph, has been overcome by amendment.

Previous Double Patenting

2. The provisional rejection of claims 9, 11, 14, and 15 under the judicially created doctrine of obviousness-type double patenting has been overcome by amendment.

Previous Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. The rejection of claims 1-16 and 18 under 35 U.S.C. 102(e) as being anticipated by Qiao et al. (US Pat. No. 6,423,760) *stands for the reasons of record.*
5. The rejection of claims 1, 5-8, and 18 under 35 U.S.C. 102(e) as being anticipated by Angus et al. (Pub. No.: US 2004/0147677) *stands for the reasons of record.*
6. The rejection of claims 9, 10, 15, and 16 under 35 U.S.C. 102(e) as being anticipated by Sahnoune et al. (Pub. No.: US 2004/0039075) *stands for the reasons of record.*

Claim Rejections - 35 USC § 102

7. Claims 1-16 and 18-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Qiao et al. (US Pat. No. 6,423,760).

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The applied reference has a common assignee with the instant application; however, the inventive entity is different. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1, 4-8, and 18-21, Qiao et al. disclose: *(1)* a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (column 3, line 66 through column 4, line 7), wherein an average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 2, lines 37-42);

(4) wherein the average particle size of said rubber phase is 0.05-0.5 μ (column 2, lines 37-42); *(19)* wherein the average particle size of said rubber phase is 0.05-0.2 μ (column 2, lines 37-42);

(5) wherein the weight ratio of rubber phase to plastic is 30:70 to 75:25 (column 4, lines 16-24), *(20)* wherein the weight ratio of rubber phase to plastic 50:50 to 75:25 (column 4, lines 16-24);

(6) wherein said rubber has a gel content of at least 60% by weight (column 2, lines 15-36), *(21)* wherein said rubber has a gel content of at least 75% by weight (column 2, lines 15-36);

(7) wherein the plastic matrix is at least one of *see list* (column 4, lines 16-24);

(8) wherein the rubber phase is at least one of *see list* (column 2, lines 49-59); and

(18) a method of preparing a moulded article with the vulcanized thermoplastic elastomer of claim 1 (Examples 13-15).

Regarding claims 2 and 3, Qiao et al. disclose: (2) a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (column 3, line 66 through column 4, line 7), wherein a shape of the rubber phase of said fully vulcanized thermoplastic elastomer is spheroidic (Figures 1 and 2); and (3) wherein the average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 2, lines 37-42).

Regarding claims 9-16 and 22, Qiao et al. disclose: (9) a process for preparing a fully vulcanized thermoplastic elastomer, which comprises the step of blending fully vulcanized powdery rubber with plastic (column 3, line 66 through column 4, line 7); wherein the weight ratio of fully vulcanized powdery rubber to plastic is 30:70 to 75:25 (column 4, lines 16-24),

(10) wherein the weight ratio of fully vulcanized powdery rubber to plastic is 50:50 to 75:25 (column 4, lines 16-24);

(12) wherein the shape of the fully vulcanized powdery rubber is spheroidic (Figures 1 and 2);

(11 & 13) wherein the average particle size of the fully vulcanized powdery rubber is 0.02-1 μ (column 2, lines 37-42);

(14) wherein the average particle size of fully vulcanized powdery rubber is 0.05-0.5 μ (column 2, lines 37-42), (22) wherein the average particle size of fully vulcanized powdery rubber 0.05-0.2 μ (column 2, lines 37-42);

(15) wherein said fully vulcanized powdery rubber is at least one of *see list* (column 2, lines 49-59); and

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(16) wherein said plastic matrix is at least one of *see list* (column 4, lines 16-24).

8. Claims 1, 5-8, 18, 20, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Angus et al. (Pub. No.: US 2004/0147677).

Regarding claims 1, 5-8, 18, 20, and 21 Angus et al. disclose: (1) a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (paragraphs 0020, 0021, and 0027), wherein an average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (paragraph 0045);

(5) wherein the weight ratio of rubber phase to plastic is 30:70 to 75:25 (paragraph 0026), (20) wherein the weight ratio of rubber phase to plastic is 50:50 to 75:25 (paragraph 0026);

(6) wherein said rubber phase has a gel content of at least 60% by weight (paragraphs 0026-0027), (21) wherein said rubber phase has a gel content of at least 75% by weight (paragraphs 0026-0027);

(7) wherein the plastic matrix is at least one of *see list* (paragraph 0034);

(8) wherein the rubber phase is at least one of *see list* (paragraph 0021); and

(18) a method of preparing a moulded article with the vulcanized thermoplastic elastomer of claim 1 (paragraph 0043).

9. Claims 9, 10, 15, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Sahnoune et al. (Pub. No.: US 2004/0039075).

Regarding claims 9, 10, 15, and 16, Sahnoune et al. disclose: (9) a process for preparing a fully vulcanized thermoplastic elastomer, which comprises the step of blending fully vulcanized

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powdery rubber with plastic (paragraphs 0002, 0021, and 0026), wherein the weight ratio of rubber phase to plastic is 30:70 to 75:25 (paragraph 0016);

(10) wherein the weight ratio of rubber phase to plastic is 50:50 to 75:25 (paragraph 0016);

(15) wherein the rubber phase is at least one of *see list* (paragraphs 0014-0016); and

(16) wherein the plastic matrix is at least one of *see list* (paragraph 0010).

10. Claims 1-3, 5-13, 15, 16, 18, 20, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawazura et al. (US Pat. No. 6,179,008).

Regarding claims 1, 5-8, 18, 20, and 21, Kawazura et al. disclose: (1) a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (column 34, lines 30-39 and 57-63; column 37, lines 33-37), wherein an average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 34, lines 30-39 and 57-63; column 37, lines 33-37);

(5) wherein the weight ratio of rubber phase to plastic is 30:70 to 75:25 (column 31, lines 10-19), (20) wherein the weight ratio of rubber phase to plastic 50:50 to 75:25 (column 31, lines 10-19);

(6) wherein said rubber has a gel content of at least 60% by weight (column 34, lines 30-39 and 57-63; column 37, lines 33-37), (21) wherein said rubber has a gel content of at least 75% by weight (column 34, lines 30-39 and 57-63; column 37, lines 33-37);

(7) wherein the plastic matrix is at least one of *see list* (column 31, lines 10-19);

(8) wherein the rubber phase is at least one of *see list* (column 31, lines 20-34); and

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(18) a method of preparing a moulded article with the vulcanized thermoplastic elastomer of claim 1 (Abstract).

Regarding claims 2 and 3, Kawazura et al. disclose: (2) a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (column 34, lines 30-39 and 57-63; column 37, lines 33-37), wherein a shape of the rubber phase of said fully vulcanized thermoplastic elastomer is spheroidic (column 34, lines 30-39 and 57-63; column 37, lines 33-37); and (3) wherein the average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 34, lines 30-39 and 57-63; column 37, lines 33-37).

Regarding claims 9-13, 15, and 16, Kawazura et al. disclose: (9) a process for preparing a fully vulcanized thermoplastic elastomer, which comprises the step of blending fully vulcanized powdery rubber with plastic (column 34, lines 30-39 and 57-63; column 37, lines 33-37); wherein the weight ratio of fully vulcanized powdery rubber to plastic is 30:70 to 75:25 (column 31, lines 10-19),

(10) wherein the weight ratio of fully vulcanized powdery rubber to plastic is 50:50 to 75:25 (column 31, lines 10-19);

(12) wherein the shape of the fully vulcanized powdery rubber is spheroidic (column 34, lines 30-39 and 57-63; column 37, lines 33-37);

(11 & 13) wherein the average particle size of the fully vulcanized powdery rubber is 0.02-1 μ (column 34, lines 30-39 and 57-63; column 37, lines 33-37);

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(15) wherein said fully vulcanized powdery rubber is at least one of *see list* (column 31, lines 20-34); and

(16) wherein said plastic matrix is at least one of *see list* (column 31, lines 10-19).

11. Claims 1-16 and 18-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ottawa et al. (US Pat. No. 4,818,785).

Regarding claims 1, 4-8, and 18-21, Ottawa et al. disclose: (1) a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (column 11, lines 1-55), wherein an average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 11, lines 1-55);

(4) wherein the average particle size of said rubber phase is 0.05-0.5 μ (column 11, lines 1-55); (19) wherein the average particle size of said rubber phase is 0.05-0.2 μ (column 11, lines 1-55);

(5) wherein the weight ratio of rubber phase to plastic is 30:70 to 75:25 (column 11, lines 1-55), (20) wherein the weight ratio of rubber phase to plastic 50:50 to 75:25 (column 11, lines 1-55);

(6) wherein said rubber has a gel content of at least 60% by weight (column 9, line 30 through column 10, line 22), (21) wherein said rubber has a gel content of at least 75% by weight (column 9, line 30 through column 10, line 22);

(7) wherein the plastic matrix is at least one of *see list* (column 10, lines 25-68);

(8) wherein the rubber phase is at least one of *see list* (column 5, line 45 through column 6, line 68); and

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(18) a method of preparing a moulded article with the vulcanized thermoplastic elastomer of claim 1 (column 11, lines 55-68).

Regarding claims 2 and 3, Ottawa et al. disclose: (2) a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (column 11, lines 1-55), wherein a shape of the rubber phase of said fully vulcanized thermoplastic elastomer is spheroidic (column 11, lines 1-55); and (3) wherein the average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 11, lines 1-55).

Regarding claims 9-16 and 22, Ottawa et al. disclose: (9) a process for preparing a fully vulcanized thermoplastic elastomer, which comprises the step of blending fully vulcanized powdery rubber with plastic (column 11, lines 1-55); wherein the weight ratio of fully vulcanized powdery rubber to plastic is 30:70 to 75:25 (column 11, lines 1-55),

(10) wherein the weight ratio of fully vulcanized powdery rubber to plastic is 50:50 to 75:25 (column 11, lines 1-55);

(12) wherein the shape of the fully vulcanized powdery rubber is spheroidic (column 11, lines 1-55);

(11 & 13) wherein the average particle size of the fully vulcanized powdery rubber is 0.02-1 μ (column 11, lines 1-55);

(14) wherein the average particle size of fully vulcanized powdery rubber is 0.05-0.5 μ (column 11, lines 1-55), (22) wherein the average particle size of fully vulcanized powdery rubber 0.05-0.2 μ (column 11, lines 1-55);

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(15) wherein said fully vulcanized powdery rubber is at least one of *see list* (column 5, line 45 through column 6, line 68); and

(16) wherein said plastic matrix is at least one of *see list* (column 10, lines 25-68).

12. Claims 1-7, 9-14, 16, and 18-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ueda et al. (US Pat. No. 5,082,732).

Regarding claims 1, 4-7, and 18-21, Ueda et al. disclose: (1) a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (Abstract; column 5, lines 31-56), wherein an average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (Abstract; column 5, lines 31-56);

(4) wherein the average particle size of said rubber phase is 0.05-0.5 μ (Abstract; column 5, lines 31-56); (19) wherein the average particle size of said rubber phase is 0.05-0.2 μ (Abstract; column 5, lines 31-56);

(5) wherein the weight ratio of rubber phase to plastic is 30:70 to 75:25 (column 4, lines 65-67), (20) wherein the weight ratio of rubber phase to plastic 50:50 to 75:25 (column 4, lines 65-67);

(6) wherein said rubber has a gel content of at least 60% by weight (column 4, lines 1-9), (21) wherein said rubber has a gel content of at least 75% by weight (column 4, lines 1-9);

(7) wherein the plastic matrix is at least one of *see list* (column 4, lines 27-59); and

(18) a method of preparing a moulded article with the vulcanized thermoplastic elastomer of claim 1 (Abstract).

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Regarding claims 2 and 3, Ueda et al. disclose: **(2)** a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (Abstract; column 5, lines 31-56), wherein a shape of the rubber phase of said fully vulcanized thermoplastic elastomer is spheroidic (Abstract; column 5, lines 31-56); and **(3)** wherein the average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (Abstract; column 5, lines 31-56).

Regarding claims 9-14, 16 and 22, Ueda et al. disclose: **(9)** a process for preparing a fully vulcanized thermoplastic elastomer, which comprises the step of blending fully vulcanized powdery rubber with plastic (Abstract; column 5, lines 31-56); wherein the weight ratio of fully vulcanized powdery rubber to plastic is 30:70 to 75:25 (column 4, lines 65-67),

(10) wherein the weight ratio of fully vulcanized powdery rubber to plastic is 50:50 to 75:25 (column 4, lines 65-67);

(12) wherein the shape of the fully vulcanized powdery rubber is spheroidic (Abstract; column 5, lines 31-56);

(11 & 13) wherein the average particle size of the fully vulcanized powdery rubber is 0.02-1 μ (Abstract; column 5, lines 31-56);

(14) wherein the average particle size of fully vulcanized powdery rubber is 0.05-0.5 μ (Abstract; column 5, lines 31-56), **(22)** wherein the average particle size of fully vulcanized powdery rubber 0.05-0.2 μ (Abstract; column 5, lines 31-56); and

(16) wherein said plastic matrix is at least one of *see list* (column 4, lines 27-59).

Response to Arguments

13. Applicant's arguments filed January 13, 2005 have been fully considered but they are not persuasive.

Applicants make note that they will submit a certified translation to overcome the rejections over Qiao et al. and Angus et al. This translation document has not been submitted; hence, the claims stand rejected for the reasons of record.

Applicants have traversed the rejection over Sahnoune et al. by noting that Sahnoune et al. use a process of dynamic vulcanization: "That is to say, the rubber phase in the thermoplastic elastomer obtained by a process of dynamic vulcanization is vulcanized in the course of, rather than prior to, melt blending the rubber and the plastic matrix" – *see page 8, middle paragraph*.

Applicants feel that their claimed invention is different from Sahnoune et al. because their rubber is first fully vulcanized and then blended with the plastic material; however, these limitations are not present in the instant claims. None of the claims explicitly recite a full vulcanization step *prior to* blending.

Furthermore, it is the Examiner's position that full vulcanization is achieved at some stage of mixing in dynamic vulcanization; hence, from that point on *blending* of fully vulcanized rubber and plastic is achieved in the mixing apparatus.

Accordingly, the rejections have been maintained.

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Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael J. Feely
Primary Examiner
Art Unit 1712

April 1, 2005